1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Impact Statement (EIS) has been prepared by the U.S. Department of Energy (DOE), in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 USC 4321 *et seq.*), to evaluate the potential environmental impacts associated with constructing and demonstrating a coal-fired Low Emission Boiler System (LEBS) for electric power generation at the *proof-of-concept* scale. DOE is the lead agency and the U.S. Department of Agriculture (USDA), Rural Utilities Service (RUS), is a cooperating agency in preparing this EIS for the LEBS project. DOE is considering a proposal to provide cost-shared funding for the LEBS project, and RUS may consider financing a portion of the non-DOE share of the project. Specifically, this EIS will be used in making a decision on whether or not to provide cost-shared funding to design, construct, and demonstrate LEBS technology that was originally proposed to DOE by DB Riley, Inc., a private sector participant in the LEBS project development, and a team comprised of Sargent & Lundy, ThermoPower Corporation, the University of Utah, Southern Illinois University (Carbondale), Reaction Engineering International, AEP Resources, and Zeigler Coal Holding Company (the parent company of Turris Coal Company). Since the project was originally proposed, DB Riley is now doing business as Babcock Borsig Power, and the team of participants is composed of Corn Belt Energy Corporation and the Turris Coal Company. In this EIS, the project team will be referred to as the Babcock Borsig team.

The goal of the LEBS project is to provide reliable, economical, highly efficient, and environmentally preferred technologies for pulverized coal-fired power generation. DOE's role has been to accelerate the development and deployment of technologies that meet LEBS objectives, ensure a better product through competition and involvement of the power industry, and share in the cost of development.

Currently, about 55% of U.S. electricity requirements are met by steam-electric generating stations fired with pulverized coal. The abundance of available reserves in the United States makes coal one of the nation's most important strategic resources for sustaining a secure energy future. Using existing mining technology, recoverable reserves of coal in the United States could support consumption at current levels for nearly 300 years. However, advanced technologies for coal combustion must be developed if coal is to be used for providing an environmentally acceptable and economically competitive source of energy in the 21st century.

Nearly 50% of existing electrical generating capacity in the United States is over 30 years old. Thus, much replacement or refurbishment is anticipated over the next several decades to continue to meet current electricity demand, and new capacity will be needed to keep pace with future increases in demand for electricity. As the most abundant domestic energy source, coal continues to represent an

*Terms or phrases bounded by asterisks are defined in the Glossary, Page xi.

attractive option for future power plants, particularly through advanced technologies that have the potential to dramatically improve environmental performance and efficiency.

Since the early 1970s, DOE and its predecessor organizations have pursued a research and development program for ensuring available and affordable energy supplies while improving environmental quality. Involvement of the Federal government is intended to hasten the development of technology to meet near-term energy and environmental goals, provide technologies that minimize risks to human health and the environment, and encourage continuing research and development directed at ensuring longer-term energy supply. The DOE-supported program includes projects at a sufficiently large scale to allow the power industry to make informed decisions regarding commercialization based on demonstrated technical and economic performance.

As part of this research and development program, DOE's National Energy Technology Laboratory conducted a focused evaluation of the potential for evolving technologies to substantially improve the performance of coal-fired power plants (DOE 1993). This evaluation, performed in 1989 and 1990 at the initial stage of the LEBS development, considered advanced technologies for coal combustion and for control of air emissions and included a review of environmental regulations both in the United States and abroad. Two critical needs for future use of coal were identified: making coal burn cleaner and making coal-fired power plants more efficient. To meet the environmental need, approaches were envisioned that could achieve appreciable reductions in emissions of sulfur dioxide (SO_2), oxides of nitrogen (NO_x), and particulate matter. Consultation with personnel representing the power industry and the environmental and research communities helped to identify promising technologies and reasonable environmental objectives for technology development.

For SO_2 reduction, several technologies were identified by DOE as potentially capable of reducing emissions to less than 0.1 lb per million British thermal units (lb/MM Btu) of energy input, which corresponds to a factor of 12 reduction below the New Source Performance Standard of 1.2 lb/MM Btu established by the U.S. Environmental Protection Agency (EPA) for new coal-fired power plants. These technologies included an integrated system for combining *dry scrubbing* with *fabric filters* and desulfurization using a packed bed of copper-oxide beads.

Similarly, several technologies were identified as potentially capable of reducing NO_x emissions to below 0.1 lb/MM Btu of energy input, which is a factor of 5 to 6 reduction from the New Source Performance Standards of 0.5 lb/MM Btu for subbituminous coal and 0.6 lb/MM Btu for bituminous coal and anthracite coal. Included were combustion technologies that provide for staged addition of coal and combustion air and for control of combustion temperature and residence time. *Flue gas* cleanup technologies were identified for post-combustion control.

For particulate matter, advances in *electrostatic precipitators* and fabric filters were identified as promising technologies for reducing emissions below 0.01 lb/MM Btu, which is a threefold improvement over the New Source Performance Standard of 0.03 lb/MM Btu. Nearly all of the improvement would result from reducing emissions of small-sized particles, which are harmful to human health because of their ability to be inhaled into the lungs. Furthermore, because the bulk of

hazardous elements and condensed organic matter from coal combustion are deposited on particles, the increased capture of these particles would reduce emissions of potentially toxic substances.

Other benefits of the technologies were identified in addition to these potential improvements in air emission control. Advanced sulfur removal methods could yield marketable by-products. Coal combustion under *slag* production conditions could produce *vitrified ash* inherently resistant to *leaching* at ash disposal sites. Increases in efficiency could result from advances in combustion technology, supercritical steam cycles, and low temperature heat recovery systems. Increased heat recovery from low temperature flue gas could be achieved by using equipment and materials capable of operating near acid dew point temperatures and by further development of low temperature, acid-resistant *heat exchangers*. Electric generating costs would be reduced as a result of these efficiency improvements that, importantly, would also result in reduced air emissions per unit of electricity generated because less coal would be required to produce a given amount of electricity.

To capture the potential benefits of these promising technologies, the National Energy Technology Laboratory defined the LEBS objectives and conducted a competitive solicitation to establish cost-shared activities for industry-conceived LEBS technologies (Kim et al. 1994; Ruth et al. 1997). Target objectives for emissions of SO_2, NO_x, and particulate matter were based on the levels identified previously. These emission objectives were required to be achievable at (1) electricity costs comparable to, and preferably less than, the costs for a new, conventional power plant firing coal in compliance with New Source Performance Standards and (2) energy recovery efficiencies at least as high as the most efficient, modern, conventional coal-fired plant meeting New Source Performance Standards, preferably approaching 42% recovery of the energy content of coal as electrical energy.

The LEBS solicitation was released in December 1990, and three cost-shared contracts were awarded in 1992 to DB Riley (now Babcock Borsig Power (BBP)), ABB-Combustion Engineering, and Babcock & Wilcox. The LEBS contracts included four work phases. Phase I work, which consisted of preliminary design of a conceptual LEBS power plant generating 400 MW[1] of electricity, was completed in August 1994. This power plant size for Phase I was selected to obtain design comparisons at a typical commercial scale. In Phase II, system analysis and subsystem tests were performed at scales ranging from 3 MW to 10 MW. In Phase III, preliminary design of a proof-of-concept facility in the 10 MW to 80 MW size range was performed. At the end of Phase III in 1997, the ABB-Combustion Engineering team informed DOE of its decision not to propose a system for Phase IV demonstration and withdrew from the LEBS technology development effort.

For the Phase IV demonstration, the BBP team proposed to design, construct, and operate a new 91 MW gross electrical output (projected 82 MW net output) facility at Elkhart, Illinois. The Babcock & Wilcox team proposed modification and operation of their existing facility at Alliance, Ohio. In 1997, Congress provided sufficient funding for only a single contract for development of

[1] All electrical generating capacities presented in this EIS are gross, rather than net, electrical capacities, unless otherwise noted; gross capacities include both the electricity provided to customers and the electricity consumed by the electric generating facility during operation.

advanced pulverized coal-fired power plant technology (U.S. House 1998). Subsequent DOE review determined that the Babcock Borsig proposal would provide the most advantageous plant size and technology for achieving LEBS objectives. Thus, DOE selected the technology proposed by Babcock Borsig for continuation into Phase IV.

This EIS addresses the Phase IV work, for which DOE would provide approximately 23.5% of the funds required for constructing and demonstrating LEBS technology based on the Babcock Borsig design at a scale of 91 MW, which is considered to be an appropriate size for verifying the technical performance and economic viability of the technology (Darguzas and Beittel 1997). This EIS considers the environmental consequences of constructing and operating LEBS technology at the site proposed by Babcock Borsig, as well as reasonable alternatives, including the no-action alternative.

1.2 PROPOSED ACTION

The proposed action is for DOE to provide cost-shared funding for the design, construction, and operational demonstration of a new coal-fired LEBS technology for electric power generation at the proof-of-concept scale. Specifically, DOE will decide on providing approximately $33.5 million (about 23.5% of the total cost of approximately $142.5 million) to demonstrate LEBS technology under optional Phase IV of the LEBS program at a new 91 MW coal-fired power plant adjoining Turris Coal Company's existing mine in Elkhart, Illinois.

The BBP team, including Corn Belt Energy Corporation (CBEC) and Turris Coal Company, developed the concept for demonstrating LEBS technology at Elkhart. DOE selected the BBP team for further development of LEBS technology following comparative evaluation of LEBS concepts. Because DOE's role in the Phase IV demonstration would be limited to sharing in the cost for technology demonstration, the decision for DOE is limited to whether or not to fund the project. This level of involvement by DOE limits the alternatives that are available to DOE, that are evaluated in this EIS (Section 2.0), and that would be considered by DOE in making a decision on the proposed action.

1.2.1 Purpose

A major goal of U.S. energy policy is to achieve reliable, affordable, and environmentally sound energy for America's future (NEP 2001). Reliable energy sources would increase America's energy security. Because the abundant domestic reserves of coal provide one of the nation's most important resources for sustaining a secure energy future, DOE has pursued a research and development program that includes advanced systems for using coal in a manner that improves environmental quality. LEBS technology is a key component of this research and development program. The cost-sharing feature of the LEBS technology development effort fits well within DOE's strategy of combining DOE financial support with financial support from private industry for the development of evolving energy technologies (DOE 1998).

Specific objectives have been defined for LEBS development. The Clean Air Act (CAA), including the 1990 amendments, mandates that new and existing coal-fired power plants meet stringent emission levels. To help address this mandate, DOE established requirements that the LEBS

development effort demonstrate promising coal utilization technologies that would not only achieve mandated emission levels but would also result in plants operating even more cleanly than required by the CAA while reducing the cost of environmental control. For LEBS development, DOE selected participating teams to demonstrate technology for the combined removal of SO_2, NO_x, and particulate matter, with the goal of achieving emission levels that would be lower than CAA limits while producing power more efficiently and at comparable or less cost. The LEBS development effort would need to generate technical, environmental, and financial data from the design, construction, and operation of facilities at a sufficiently large scale to allow the power industry to assess the potential for commercial application of developed technology.

In summary, the purpose of the LEBS project is to demonstrate promising coal combustion and environmental control technologies that would help the power industry reduce emission levels below mandated levels while reducing costs. Furthermore, a successful demonstration would result in the ability of the U.S. to supply LEBS technology to an expanding world market for advanced coal-fired combustion and pollution control technology.

1.2.2 Need

The need for demonstrating LEBS technology varies among the stakeholders. For DOE, cost-shared funding for the project would address the Congressional mandate in Public Law 99-190 for demonstrating environmentally sound technologies for the utilization of coal. For Babcock Borsig, a successful demonstration would increase opportunities to market LEBS technology for commercial deployment throughout the United States and the world. For Turris Coal Company, the proposed project would become a sizeable long-term consumer of coal from the adjacent mine and would enhance the stability of the company's operations.

From the local community's perspective, the proposed project would provide economic benefits by creating temporary construction jobs and permanent new jobs at the power plant and the coal mine. On a regional basis, the proposed power plant would be the only plant in the State of Illinois' power queue for new transmission capacity anywhere in the area. Electricity generated by the plant could potentially displace electricity supplied by older, less efficient facilities with higher air pollution emission rates, thereby improving the overall air quality of the region.

Although DOE considers that both Corn Belt Energy's needs and the community's interests support the overall value of the project, DOE's primary reason for considering the proposed project is solely to demonstrate innovative, coal-based technology. The cost-share contribution by DOE for the proof-of-concept demonstration would help reduce the risk to the BBP team in developing LEBS technology to the level of maturity needed for decisions on commercialization.

1.2.2.1 DOE's Need

Since the early 1970s, DOE and its predecessor organizations have pursued a broadly based coal research and development (R&D) program for ensuring available and affordable energy supplies while improving environmental quality. This R&D program includes long-term activities that support the

development of innovative, unproven concepts for a wide variety of coal technologies. However, before any technology can be seriously considered for commercialization, demonstration at a sufficiently large scale is required to prove operational and economic viability. Due to cost requirements, utilities and other private sector companies generally are reluctant to demonstrate technologies at an unproven scale in the absence of strong economic incentives or legal requirements. The implementation of a technology demonstration program with cost-shared funding from the Federal government has been endorsed by Congress and industry as a mechanism to accelerate the commercialization of innovative technology to meet near-term energy and environmental goals, to reduce risk to an acceptable level through cost-shared funding, and to provide the incentives necessary for continued R&D directed at providing solutions to long-range energy supply problems.

As part of the coal-fired power generation R&D program, the proposed project would meet DOE's need to demonstrate the commercial viability of integrated LEBS technology for providing a reliable, economic, highly efficient, and environmentally preferred approach for pulverized coal-fired power generation. The ability to demonstrate, to prospective domestic and overseas customers, new technology using an operating facility rather than a conceptual or engineering prototype would provide a persuasive inducement to purchase American coal utilization technology. Data obtained on operational characteristics using the integrated pollution control technologies during the demonstration would allow prospective customers to assess the potential of LEBS technologies for commercial application. Successful demonstration of LEBS technologies would enhance prospects for exporting the technology to other nations and may provide an important advantage for the United States in the global competition for new markets. DOE would work closely with the LEBS team to identify plans for technology transfer and for supporting deployment of the technologies in the marketplace.

1.2.2.2 LEBS Team Need

For Turris Coal Company, the proposed generating plant would become a sizeable, long-term user of coal from the adjacent Turris Mine. Because electricity is an appreciable portion of the Mine's coal production costs, stable and low-cost electricity supplied to the local grid by the proposed plant could create economic benefits and energy supply stability for Turris Coal Company.

For Corn Belt Energy Corporation, the LEBS power plant would provide an opportunity to enter the power generation business at a capital cost below that of a comparably sized conventional steam generation facility. In addition to the funding that would be provided by the Department of Energy, additional funds may be available through the State of Illinois' Department of Commerce and Community Affairs. The combination of state and Federal funds would reduce the capital investment required for plant financing. The RUS may also consider financing for a portion of the project, since Corn Belt Energy is eligible for Federal funding as a rural electric utility.

Since terminating membership in Soyland Power Cooperative, Corn Belt Energy has relied almost exclusively on purchased power contracts to meet its member load. Because of price volatility and transmission constraints that limit the importing of power into Illinois, Corn Belt Energy initiated investigations into finding long-term sources of power to obtain a more balanced power supply

portfolio of owned generation and purchased power. Corn Belt Energy determined that the proposed LEBS plant adjacent to the Turris Mine could fill a substantial portion of its base-load requirements and has been the prime mover in formulating a corporate structure and soliciting other utilities to participate in the LEBS plant. Corn Belt Energy has also assumed primary responsibility for arranging financing. To construct, own, and operate the plant, Corn Belt Energy formed a new company named Corn Belt Electric Generation Cooperative (CBEG). It is contemplated that the new cooperative will apply to RUS for long-term financing for a portion of the project's capitalization.

On May 1, 2001, Corn Belt Energy became an "all-requirements" customer of Wabash Valley Power Association ("Wabash"), a power supply cooperative headquartered in Indianapolis, Indiana. Effective January 1, 2003, Corn Belt Energy became an all-requirements member of Wabash under a long-term wholesale power contract. Wabash will become a member of CBEG and obtain a share of the LEBS plant's output. In conjunction with its membership in Wabash, Corn Belt Energy will assign its share of the output from the plant to Wabash, and Wabash will incorporate power received from the plant into its power supply resources and supply all of Corn Belt Energy's power supply needs. As a member of Wabash, Corn Belt Energy will realize the economic benefit of the plant's power output as well as other power supply and long-term planning benefits emanating from Wabash's obligations under the wholesale power contract.

Together, Wabash and Corn Belt Energy will take at least 76% of the Turris plant's output. Possible alternatives for the remaining 24% of the output are being evaluated. One possibility is that Wabash will contract for the remaining amount of the plant's output.

The need for the project to serve the power needs of Wabash's members (including Corn Belt Energy) is demonstrated in Table 1.2.1.

Table 1.2.1. Wabash's Total System Needs (MW)

	2003	2005	2007	2009
Capacity Requirement	1,496	1,606	1,727	1,857
Wabash's Owned Generation	159	400	400	400
Wabash's Market Purchases	1,337	1,206	1,327	1,457

Wabash currently relies on purchased power to meet the majority of its requirements. In light of the high dependence on purchased power, Wabash has developed a capacity expansion plan that will produce a less risky power supply portfolio by increasing the amount of owned generation relative to purchased power. Indirect ownership of a share of the plant's output as a member of CBEG is consistent with Wabash's expansion plan.

In addition to Corn Belt Energy, Wabash serves additional members located in Illinois. Thus, as shown in Table 1.2.2, Corn Belt Energy's and Wabash's combined shares of the LEBS plant would partially meet the capacity requirements of Wabash's Illinois load obligation. Operationally, this

would minimize Wabash's exposure to transmission constraints that could limit its ability to import power into Illinois to serve its Illinois members.

Table 1.2.2 tabulates Wabash's load and resource balance in Illinois.

Table 1.2.2. Wabash's Illinois Needs (MW)

	2003	2005	2007	2009
Capacity Requirement	194	209	225	241
Wabash's Owned Generation	0.0	0.0	0.0	0.0
Wabash's Shortfall	194	209	225	241

As demonstrated in Table 1.2.2, the LEBS plant would serve existing loads and not be contingent on load growth. The plant would reduce the requirement to purchase power, which over time would probably be more volatile and expensive. Consequently, all of the energy from the plant would be expected to be used by the Wabash system.

Benefits accruing to Wabash and Corn Belt Energy from the project include the following:

- Cost stability through fixing the long-term cost of base load energy at current favorable rates
- Elimination of the volatility associated with power purchases
- Wabash security through contractual rights to an Illinois-based generating unit, thereby reducing its susceptibility to transmission constraints were Wabash to otherwise import power into Illinois to serve its Illinois members

Wabash and Corn Belt Energy have concluded that the proposed LEBS plant is needed and should be a part of the resource mix to serve their Illinois members.

1.3 NATIONAL ENVIRONMENTAL POLICY ACT STRATEGY

DOE determined that providing cost-shared financial support for the LEBS technology demonstration would constitute a major Federal action that could significantly affect the quality of the human environment. Any future decision by RUS to provide financial assistance for the proposed LEBS project would also constitute a major Federal action that could significantly affect the quality of the human environment. DOE, as the lead agency, has thus prepared this EIS for use by decision makers in determining whether or not to provide partial funding for the design, construction, and demonstration of LEBS technology at the proof-of-concept scale. This EIS assesses the potential impacts on the human and natural environment of the proposed action and reasonable alternatives and establishes a basis for the public to provide input and feedback on the proposed action as part of the NEPA process.

This EIS has been prepared in accordance with Section 102(2)(C) of NEPA, as implemented under regulations promulgated by the Council on Environmental Quality (40 CFR Parts 1500-1508) and as

provided in DOE regulations for compliance with NEPA (10 CFR Part 1021). The EIS is organized according to Council on Environmental Quality recommendations (40 CFR 1502.10).

A Notice of Intent (NOI) to prepare the EIS and hold public scoping meetings was published by DOE in the *Federal Register* on December 19, 1996 (61 *FR* 67003). The NOI invited comments and suggestions on the proposed scope of the EIS, including environmental issues and alternatives, and invited participation in the NEPA process. The NOI also was printed in the "Legal Notices" section of newspapers in Springfield, Illinois; Richmond, Indiana; and Alliance, Ohio; and was sent to Federal and state agencies for review and comment on the proposed project.

Publication of the NOI initiated the EIS process with a public scoping period (40 CFR 1501.7) for soliciting public input to ensure that (1) significant issues would be identified early and properly studied, (2) issues of minimal significance would not consume excessive time and effort, (3) the EIS would be thorough and balanced, and (4) potential delays that could result from an incomplete or inadequate EIS would be avoided. DOE held scoping meetings in Richmond, Indiana, on January 15, 1997, and in Elkhart, Illinois, on January 16, 1997, near the locations identified as host sites for demonstrating the LEBS technology. The Richmond location was selected by ABB-Combustion Engineering, which has since withdrawn from the LEBS technology development effort. The Elkhart location was selected by DB Riley (now BBP). No scoping meeting was held in Alliance, Ohio, because DOE's internal scoping found no environmental issues of concern associated with the site proposed by Babcock & Wilcox, and because the public identified no concerns when provided with the opportunity to submit comments and suggestions. As noted earlier, the LEBS technology proposed by Babcock & Wilcox was eliminated by DOE from further consideration for the Phase IV demonstration. The public was encouraged to provide oral comments at the scoping meetings and to submit additional comments to DOE by the close of the EIS scoping period on February 3, 1997.

DOE reviewed comments from the meeting in Richmond, Indiana, which were determined to be limited to the proposed project at Richmond. Thus, the comments from the Richmond meeting were not applicable to the Babcock Borsig project and are not discussed in this EIS. No comments were received for the Babcock & Wilcox project. DOE received oral and written responses from two people at the meeting in Elkhart, Illinois. An Illinois state official requested that the EIS address water use and water supplies for the proposed power plant. These issues are discussed fully in the EIS. One member of the public requested that the EIS clearly define and evaluate three options for converting the captured sulfur oxide to a salable product (i.e., ammonium sulfate for fertilizer, sulfuric acid, and elemental sulfur). Although LEBS technology would be capable of implementing the three options, the BBP team selected and proposed a design that uses limestone scrubbing to produce a gypsum product. Therefore, for the purpose of DOE decision-making on the proposed project, the three options for producing a saleable product were not reasonable alternatives and were not considered further in this EIS.

1.4 SCOPE OF THE ENVIRONMENTAL IMPACT STATEMENT

This section summarizes the issues and alternatives considered during preparation of the EIS. The following issues were initially identified by DOE as requiring analysis and assessment in the EIS:

- potential air, surface water, transportation, and noise impacts produced during power plant construction and operation
- pollution prevention and waste management practices, including potential solid waste impacts, during power plant construction and operation
- potential socioeconomic and environmental justice impacts to the surrounding communities as a result of implementing the proposed project
- potential cumulative or long-term impacts from the proposed power plant and other past, present, or reasonably foreseeable future actions
- potential irreversible and irretrievable commitment of resources
- compliance with all applicable Federal, state, and local statutes and regulations
- safety and health of workers and the public during construction and operation of the proposed power plant

DOE used public input obtained during the scoping process (Section 1.3) to add to the list of issues requiring analysis and assessment. As discussions about the proposed project progressed, DOE identified several additional issues that needed to be addressed. Table 1.4.1 lists the composite set of issues identified for consideration in the EIS. Issues are analyzed and discussed in this EIS in accordance with their level of relative importance. The most detailed analyses focus on air quality and groundwater impacts.

Reasonable alternatives to the proposed project (i.e., approaches that are practical or feasible both technically and economically) that were considered initially by DOE as appropriate for meeting DOE's purpose and need, and that were therefore candidates for analysis in this EIS, included:

- alternative size power plants for proof-of-concept testing that would provide the design and performance data needed for scale-up to commercial operation
- alternative technology approaches for meeting the LEBS performance objectives
- alternative sites for demonstrating LEBS technology at the proof-of-concept scale
- no-action alternative, in which funding would not be provided to demonstrate LEBS technology, with the only reasonably foreseeable scenario as a consequence of no action being that the proposed project in Elkhart, Illinois, would not be built

After considering candidate alternatives, DOE determined that the reasonable alternatives to be evaluated in the EIS are the proposed project and the no-action alternative. Alternative sites and alternative technologies were considered by offerors in preparing proposals to the LEBS solicitation and in preparing environmental documentation for projects to be considered for funding. However, offerors did not proposed these alternatives in their responses to the LEBS solicitation. Alternatives that would involve delays in the project or changes in power plant size would not meet the purpose and need for agency action and would not provide obvious advantages for the environmental analysis, and

neither option was considered by a LEBS team; therefore, no basis exists for further evaluating these two alternatives.

Table 1.4.1. Issues identified for consideration in the Environmental Impact Statement

Issues identified in the Notice of Intent
Air quality impacts
Surface water impacts
Noise impacts
Transportation impacts
Pollution prevention and waste management practices, including potential solid waste impacts
Socioeconomic and environmental justice impacts to the surrounding communities
Cumulative or long-term impacts from the proposed project and other past, present, or reasonably foreseeable future actions
Irreversible and irretrievable commitment of resources
Compliance with all applicable Federal, state, and local statutes and regulations
Safety and health of workers and the public
Issues identified during public scoping
Options for converting captured sulfur oxide to a salable product
Water use and water supplies for the proposed power plant, including impacts to groundwater
Further issues identified by the U.S. Department of Energy
Aesthetic impacts
Impacts to ecological resources
Impacts to cultural resources
Floodplains and wetlands impacts
Land use impacts

1.5 ASSESSMENT APPROACH AND ASSUMPTIONS

In preparing this EIS, DOE identified and assessed potential environmental impacts of constructing the proposed power plant and testing operations during a demonstration period for DOE. A separate section of the EIS (Section 5.0) addresses potential environmental impacts of commercial operations following successful completion of the demonstration. The potential environmental impacts are assessed for the proposed site and the surrounding area outside the site boundaries, as appropriate, for each resource category considered. Impacts of the proposed power plant during the demonstration

period are based primarily on the plant operating characteristics described in Section 2.0 of the EIS, with the major exception that long-term air quality impacts predicted by air dispersion modeling are based on the conservative assumption that the proposed plant would operate at a 100% capacity factor rather than the 85% capacity factor anticipated by Corn Belt Energy Corporation.